

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 607 040 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:
10.09.1997 Bulletin 1997/37

(51) Int Cl.⁶: **E06B 9/04**

(21) Application number: 94300228.7

(22) Date of filing: 13.01.1994

(54) **Improvements in and relating to security covers for door or window openings**

Verbesserungen bezüglich Sicherheitsdeckeln von Tür- oder Fensteröffnungen

Amélioration concernant des couvertures de sécurité pour des ouvertures de portes ou fenêtres

(84) Designated Contracting States:
BE DE ES FR GB IE IT NL

(30) Priority: 14.01.1993 GB 9300629
19.06.1993 GB 9312722
08.07.1993 GB 9314082

(43) Date of publication of application:
20.07.1994 Bulletin 1994/29

(73) Proprietor: **BAR-IT Limited**
East Kilbride, Glasgow, G75 0YL (GB)

(72) Inventor: **Muirhead, Robert**
Ellesmere Port, South Wirral, L66 2PG (GB)

(74) Representative: **Lyons, Andrew John et al**
ROYSTONS,
Tower Building,
Water Street
Liverpool L3 1BA, Merseyside (GB)

(56) References cited:
EP-A- 0 422 934 FR-A- 2 490 712
GB-A- 2 160 248 US-A- 2 631 698
US-A- 4 059 923

EP 0 607 040 B1

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

This invention concerns security covers for doors or window openings, especially of void premises.

Security covers for building openings are known, for example, from EP-A-0422934 which describes a security cover comprising a frame defining an opening and a panel for closing the opening, the panel being pivotally connected to and separable from the frame.

An object of this invention is to provide improved security covers for use on door or window openings.

According to this invention, there is provided a security cover for an opening in a building, such as a door or window, the cover comprising a frame defining an opening and a panel lockable in the frame for closing said opening, the panel being pivotally connected to and separable from the frame, characterized in that the panel is connected to the frame by a double-link pivoting arrangement and the frame comprises first and second opposed U-section channels open towards each other, opposed panel edges locating in respective channels for locking, the first channel being sufficiently deep and wide to allow lateral movement of the panel when unlocked as well as pivoting movement of the panel out of the plane of the frame to release the panel from the second channel and then from the first channel.

The lateral movement of the panel may be limited by the channels themselves or by stops on the panel which can abut against the frame. The pivotal connection of the panel to the frame permits the panel to be pulled clear of the frame sufficiently to allow access therethrough.

The frame of the security cover may be secured to a building opening in any suitable way. A preferred way is to clamp the frame to the opening by means of one or more cross bars secured to the frame so that the door frame or surrounding walling is clamped between the frame of the security cover and the cross bar or bars. Threaded studs or bolts or flexible means such as wires of chains may be used to fasten the cross bar or bars to the frame. The cross bars used may be telescopic in construction so that they are suitable for a variety of opening sizes.

The frame for the security door preferably comprises channel section members with longitudinal openings of lesser width than the channel itself and means for attachment of a cross bar are locatable in said channel section member, so that a door frame or surrounding walling may be clamped between the security door frame and ends of the cross bar.

The attachment means preferably comprise a carrier plate that is insertable into a channel section member in one orientation and is located therein when turned to another orientation, preferably through 90°. The preferred attachment means comprises an L-section plate and a screw threaded rod extending from one web thereof.

The pivotal connection between the frame and the

panel preferably comprises a first link pivotally connected to the frame at one end and to a second link at its other end, the second link being pivotally connected to the panel also. Preferably the links are braced such as by being formed as a framework with upper and lower spaced pivot points in order to prevent tilting of the door under its own weight.

Door openings are of non-uniform size. Therefore, it is preferred that a frame for use in the invention be provided with means for extending its width. Preferably extension pieces may be attached to a side frame member and to other extension pieces in order to increase the overall width of the frame to suit the opening into which it is to be fitted. Ideally side frame members and extension pieces are formed as extrusions, typically of aluminium, and are provided with mutually engaging formations on edges thereof, preferably so that extension pieces may be slid onto a formation of a side frame member or of another extension piece. Dovetail joint formations are considered to be preferable for that purpose.

The invention will now be described, by way of example only, with reference to the accompanying drawings, in which:-

Figures 1A to E show in section a security cover for a door opening in its open, closed and intermediate positions;

Figure 2 shows additional security means for the cover of Figure 1;

Figure 3 is a partial rear view of the security cover of Figure 1;

Figure 4 shows an alternative hinge arrangement for a security door of the invention;

Figure 5 is a section through an alternative security door and frame arrangement;

Figure 6 is a section through a security door frame and an extension therefor;

Figure 7 shows a system for fixing a security door frame to a door opening;

Figure 8 is a section through another security cover for a door opening in accordance with the invention; Figure 9 shows a door of the security cover of Figure 8; and

Figure 10 shows a hinge arrangement for the door of Figure 9.

Referring to Figures 1A to E of the accompanying drawing, a security cover for a door opening comprises a rectangular frame 10 usually of metal and a removable security panel 12 also usually of metal connected to the frame 10. The frame 10 is intended in use to be secured against a door frame by any suitable means. The frame 10 has on its intended outer face on its vertical sides a pair of channels 14, 16 open towards each other.

The panel 12 is connected to the frame 10 by a pivotal linkage 18 comprises a first member 20 pivotally connected to the rear of the frame and to a second mem-

ber 22 which is itself pivotally connected to the rear of the panel 12.

The rear of the panel 12 has near opposite edges thereof stops 24A and 24B for abutting against the frame in either direction.

The channel 14 on the frame side to which the linkage 18 is attached is of lesser depth than the opposite channel 16 and the width of channel 16 is sufficient to allow the edge of the panel 12 to be inclined slightly in a vertical plane relative to the plane of the frame.

The panel 12 itself is of a such a width that when one edge is inserted fully in the channel 14 its opposite edge is retained in channel 16 but when that opposite edge is inserted fully into channel 16, the one edge is free of the channel 14. In the former position, the panel 12 can be locked in place by any suitable means, such as a mortice lock.

The security cover operates in the following manner. In Figure 1A the cover panel is shown in its locked position, ie. with the one panel edge fully inserted into the channel 14 and the stop 24A abutting the frame. In this position the linkage member 22 is generally perpendicular to the panel.

To release the panel 12, the first stage after unlocking the panel is to slide the panel into the channel 16 until the stop 24B abuts the frame (Figure 1B). Then the panel is angled slightly in order to pull the one edge of the panel away from the frame (Figure 1C). The panel can then be slid in the opposite direction in order to release the opposite edge of the panel from the channel 16 (Figure 1D). Finally, the panel 12 can be pulled clear off the frame to permit access through the frame (Figure 1E).

As shown in Figure 3 of the accompanying drawings the pivotal front member 20 connected to the rear of the frame 10 comprises upper and lower members 40 and 42 respectively connected by diagonal cross-braces 44 and 46. The members 40 and 42 are mounted at opposite ends of a pivot rod 48 which is retained in upper and lower pivot brackets 50 and 52 respectively.

The second pivotal member 22 likewise comprises upper and lower members 54 and 56 respectively which are connected by diagonal cross braces 58 and 60. The members 54 and 56 are mounted at opposite ends of a second pivot rod 62 which is retained by upper and lower pivot brackets 64 and 66 respectively.

The pivotal connection between the first and second linkages 20 and 22 respectively is via a third pivot rod 68 fixed by and connected between the ends of the members 40 and 42 but about which the upper and lower members 54 and 56 of the second linkage 22 are pivotable.

The bracing of the linkages 20 and 22 is to prevent the door tilting under its own weight as it is opened. It will, of course, be appreciated that any other suitable linkage formation may be used to achieve that end.

There are various ways of securing the frame into a door opening. One suitable way as shown in Figure 2

of the accompanying drawings is to provide on the rear of the frame 10 preferably at or near each corner but sufficiently spaced from outer edges thereof to be clear of the door frame threaded members 30 onto which security bars 32 or the like can be secured by nuts 34, the bars 32 extending on each side beyond the door frame in order to clamp the security frame in position.

Referring to Figure 4 of the accompanying drawings an alternative hinge arrangement for a security door comprises a first pair of hinge pins 100 which will be mounted spaced apart on a door frame (not shown). Each pin 100 comprises a plate 102 for attachment to the frame by means of screws or the like through holes (not shown) in the plates and a vertical pin 104 at one end of the plate 102. A second pair of hinge pins 106 are mounted on a security door 108 again spaced apart.

The hinge arrangement further comprises two hinge members 110 and 112 which are coupled together and respectively to the frame and the door. The first hinge member 110 comprises upper and lower arms 114 connected by a diagonal brace 116. Each arm has at one end a socket 118 for receiving a hinge pin 104 and at its other end a vertical pin 120 on to which pins the second hinge member 112 will be mounted. The second hinge member 112 comprises a vertical flat bar 122 having at each end and on opposite edges thereof a pair of sockets 124. The upper and lower sockets on one edge of the bar locate on the pins 120 of the first hinge member and the upper and lower sockets on the opposite edge of the bar receive the pins 106 on the door 108.

This hinging arrangement permits the door 108 not only to be opened and closed but also to be moved laterally for inserting into or releasing the door from a frame of the type shown in Figure 1 or as shown in Figure 5 to be described below.

Turning to Figures 5 and 6 an alternative frame for a security door of the invention includes a pair of side frame members 130 and 132 formed preferably as extrusions in aluminium. The first frame member 130 has two channel section parts 138, 140. The first 138 opens towards the opposite side frame member 132 and the second 140 opens rearwardly. The first channel section has parallel walls 142, 144 of different lengths, the shorter 142 being to the fore. The second channel section 140 has a narrower opening 146 than its width at its base and has one side wall formed by end wall 150 of the frame member 130 and its other formed by base wall 152 of the other channel.

The other side frame member 132 has more or less the same section as the frame member 130 and like parts have been given the same reference numerals for ease of reference. The only difference is that the front wall 142 of the frame member 132 is shorter than the equivalent part of frame member 130. That is to enable a door 156 to be fitted into the frame by first sliding one edge 158 of the door into the channel section 138 of the frame member 130 so that the door can be pivoted into line with the channel 138 of the other frame member 132

and then slid laterally to locate the other edge 159 of the door in the channel 138 whilst still being retained at its opposite edge in the first frame member 130, basically in the same manner illustrated with reference to Figure 1 of the drawings.

The rearwardly opening channels 140 provide convenient locations for attachment of means for securing the frame in a door opening, such as illustrated in Figure 2 above of Figure 7 of the accompanying drawings as described below.

Because not all door openings are of the same size, the frame members 130, 132 are provided with means for extending the width of either or both (see Figure 6). The end walls 150 have on their outer surface a male dovetail formation 160 onto which can be located an extension piece 162 having at one end a female dovetail formation 164 and at its other end a male dovetail formation 166, whereby further extension pieces 162 may be added as necessary by sliding them together.

Figure 7 of the accompanying drawings shows how a security door frame may be fixed to a door opening. The frame comprises channel section members of the type 130 shown in Figures 5 and 6 of the accompanying drawings or plain channel members 170 have returned edges 172 providing a narrower opening to the channel member than the width of the channel member. The channel member 170 receives a carrier plate 174 for a screw threaded rod 176 welded thereto. The carrier plate 174 is of L-section having two webs 178, 180, the rod 176 being welded to web 178 not necessarily centrally thereof.

The carrier plate 174 is inserted into the channel member vertically and then twisted through 90° so that the web 178 lies against the banks of the returned edges 172 and the web 180 is in a horizontal plane. A pair of such carrier plates 174 will be provided one for each of a pair of spaced frame members 170 so that a clamp bar 182 having holes 184 near each end can be mounted on the threaded rods 176 and held in place with nuts (not shown) to clamp the door opening surround between the channel members 170 and the clamp bar 182 at each end thereof.

If necessary a similar arrangement may be used for horizontal top and bottom security door frame members.

Figures 8, 9 and 10 of the accompanying drawings have been included to show variations of embodiments illustrated and described above. The security cover for a door opening shown in Figures 8 to 10 comprises briefly a frame 200, a door 202 pivotally attached to the framework by a hinge arrangement 204 and lockable thereto by lock means 206.

The framework 200 has side channel frame members 208 that are similar to those of Figure 5 and 6 except that channels 210 to receive opposite door edges are formed on the closed faces of the channel members 208 rather than in line therewith. As with the embodiment of Figures 5 and 6, intended outer ends of the framework member 208 have dovetail formations 212

thereon so that extension pieces 214 can be slid onto them to extend the width of the frame 200.

The hinge arrangement 204 is again similar to that shown in Figure 4 except for the provision of an additional diagonal brace 218.

The door 202 has an outer frame 220 with three additional spaced apart cross pieces 222, 224, 226 between side frame members 228. The frame 200 is clad with metal sheet 227. To the cross pieces 222 and 226 are welded pivots 228 for the hinge arrangement 204.

The security cover of Figures 8, 9 and 10 of the accompanying drawings is securable to a door opening using the system illustrated in Figure 7 of the drawings or by any other suitable means.

The security cover of Figures 8, 9 and 10 is operated in a similar manner to the other illustrated embodiments.

Claims

1. A security cover for an opening in a building, such as a door or window, the cover comprising a frame (10) defining an opening and a panel (12) lockable in the frame for closing said opening, the panel being pivotally connected to and separable from the frame, characterized in that the panel is connected to the frame by a double-link pivoting arrangement (18) and the frame comprises first and second opposed U-section channels (16,14) open towards each other, opposed panel edges locating in respective channels for locking, the first channel (16) being sufficiently deep and wide to allow lateral movement of the panel when unlocked as well as pivoting movement of the panel out of the plane of the frame to release the panel from the second channel (14) and then from the first channel (16).
2. A security cover as claimed in claim 1, characterized in that said lateral movement is limited by the channels (16,14) themselves or by stops (24A, 24B) on the panel (12) which can abut against the frame.
3. A security cover as claimed in claims 1 or 2, characterized by means (30,32,34) for securing the frame of the security cover to a building opening.
4. A security cover as claimed in claim 3, characterized by one or more cross bars (32) securable to the frame (10) to clamp the door frame or surrounding walling between the frame of the security cover and the cross bar or bars.
5. A security cover as claimed in claim 4, characterized in that the cross bars are telescopic.
6. A security cover as claimed in any one of claims 1 to 5, characterized in that the frame comprises

doors not
separable
frame

channel section members with longitudinal openings of lesser width than the channel itself and means (174, 176) for attachment of a cross bar (182) are locatable in said channel section member so that a door frame or surrounding walling may be clamped between the security door frame and ends of the cross bar.

7. A security cover as claimed in claim 6, characterized in that the attachment means comprise a carrier plate (174) that is insertable into a channel section member (130, 170) in one orientation and is located therein when turned to another orientation, preferably through 90°.
8. A security cover as claimed in claim 7, characterized in that the attachment means comprises an L-section plate (174) and a screw threaded rod (176) extending from one web (178) thereof.
9. A security cover as claimed in any one of claims 1 to 8, characterized in that the pivotal connection between the frame (10) and the panel (12) comprises a first link (20) pivotally connected to the frame at one end and to a second link (22) at its other end, the second link being pivotally connected to the panel also.
10. A security cover as claimed in claim 9, characterized in that the links are braced (44, 46, 53, 60).
11. A security cover as claimed in claim 10, characterized in that the links are formed as a framework with upper and lower spaced pivot points (50, 52, 64, 66).
12. A security cover as claimed in any one of claims 1 to 11, characterized in that the frame is provided with means (162) for extending its width.
13. A security cover as claimed in claim 12, characterized in that extension pieces (162) are attachable to a side frame member (130) and to other extension pieces in order to increase the overall width of the frame to suit the opening into which it is fitted.
14. A security cover as claimed in claim 13, characterized in that side frame members (130, 200) and extension pieces (162, 214) are formed as extrusions and are provided with mutually engaging formations on edges thereof.
15. A security cover as claimed in claim 14, characterized in that extension pieces are slidable onto a formation of a side frame member or of another extension piece.

Patentansprüche

1. Sicherheitsabdeckung für eine Öffnung in einem Gebäude, beispielsweise für eine Tür oder ein Fenster, wobei die Abdeckung einen Rahmen (10), der eine Öffnung umschließt, und eine Tafel (12) umfasst, welche zum Schliessen der Öffnung festlegbar in dem Rahmen angeordnet ist, wobei die Tafel gelenkig verbindbar mit und trennbar von dem Rahmen angeordnet ist, dadurch gekennzeichnet, dass die Tafel mit dem Rahmen über eine Doppelhebelgelenkeinrichtung (18) verbunden ist und dass der Rahmen einen ersten und einen zweiten, diesem gegenüber angeordneten querschnittlichen U-förmigen Kanal (16, 14) aufweist, die zueinander hin offen sind, wobei sich gegenüberliegende Kantenbereiche der Tafel in den jeweiligen Kanälen zum Festlegen angeordnet sind, wobei der erste Kanal (16) genügend tief und breit ist, um sowohl eine seitliche Bewegung der Tafel zum Entriegeln als auch eine Schwenkbewegung der Tafel aus der Ebene des Rahmens heraus zu erlauben, um die Tafel aus dem zweiten Kanal (14) und dann aus dem ersten Kanal (16) herauszulösen.
2. Sicherheitsabdeckung wie in Anspruch 1 beansprucht, dadurch gekennzeichnet, dass die seitliche Bewegung durch die Kanäle (16, 14) selbst oder durch Anschläge (24 A, 24 B) auf der Tafel (12) begrenzt wird, welche gegen den Rahmen anschlagen können.
3. Sicherheitsabdeckung wie in Anspruch 1 oder 2 beansprucht, gekennzeichnet durch Einrichtungen zum Sichern des Rahmens der Sicherheitsabdeckung an einer Gebäudeöffnung.
4. Sicherheitsabdeckung wie in Anspruch 3 beansprucht, gekennzeichnet durch einen oder mehrere Querbalken (32), die an dem Rahmen (10) festlegbar sind, um den Türrahmen oder ein umgebendes Mauerwerk zwischen dem Rahmen der Sicherheitsabdeckung und dem oder den Querbalken einzuklemmen.
5. Sicherheitsabdeckung wie in Anspruch 4 beansprucht, dadurch gekennzeichnet, dass die Querbalken teleskopartig ausgestaltet sind.
6. Sicherheitsabdeckung wie in einem der Ansprüche 1 bis 5 beansprucht, dadurch gekennzeichnet, dass der Rahmen kanalförmige Profilelemente mit Längsöffnungen von geringerer Breite als der Kanal selbst aufweist und dass eine Einrichtung (174, 176) zum Festlegen eines Querbalkens (182) in diesem kanalförmigen Profilelement vorgesehen ist, so dass ein Türrahmen oder ein umgebendes

- Mauerwerk zwischen dem Sicherheitstürrahmen und den Enden des Querbalkens eingeklemmt werden kann.
7. Sicherheitsabdeckung wie in Anspruch 6 beansprucht, dadurch gekennzeichnet, dass die Einrichtung zum Festlegen einer Trägerplatte (174) aufweisen, welche in ein kanalförmiges Profilelement (130, 170) in einer Ausrichtung einsetzbar ist und darin in einer anderen Ausrichtung, bevorzugt um 90° gedreht, angeordnet ist, wenn es gedreht wird. 5
8. Sicherheitsabdeckung wie in Anspruch 7 beansprucht, dadurch gekennzeichnet, dass die Befestigungseinrichtung eine L-förmige Platte (174) und eine Schraubgewindestange (176) aufweist, welche sich von einer Fläche (178) von dieser weg erstreckt. 15
9. Sicherheitsabdeckung wie in einem der Ansprüche 1 bis 8 beansprucht, dadurch gekennzeichnet, dass die Schwenkverbindung zwischen dem Rahmen (10) und der Tafel (12) ein erstes Verbindungsglied (20) umfasst, welches mit einem Ende gelenkig mit dem Rahmen und mit dem anderen Ende mit einem zweiten Verbindungsglied (22) verbunden ist, wobei das zweite Verbindungsglied auch gelenkig mit der Tafel verbunden ist. 20 25
10. Sicherheitsabdeckung wie in Anspruch 9 beansprucht, dadurch gekennzeichnet, dass die Verbindungsglieder verstrebt (44, 46, 53, 60) sind. 30
11. Sicherheitsabdeckung wie in Anspruch 10 beansprucht, dadurch gekennzeichnet, dass die Verbindungsglieder als ein Rahmenwerk mit oberen und unteren, räumlich getrennten Gelenkpunkten (50, 52, 64, 66) ausgestaltet sind. 35
12. Sicherheitsabdeckung wie in einem der Ansprüche 1 bis 11 beansprucht, dadurch gekennzeichnet, dass der Rahmen mit einer Einrichtung (162) zum Ausdehnen seiner Breite versehen ist. 40
13. Sicherheitsabdeckung wie in Anspruch 12 beansprucht, dadurch gekennzeichnet, dass Verlängerungsstücke (162) an einem seitlichen Rahmenelement (130) und an anderen Verlängerungsstücken anbringbar sind, um die gesamte Breite des Rahmens zu erhöhen, damit er in die Öffnung passt, in die er eingesetzt ist. 45 50
14. Sicherheitsabdeckung wie in Anspruch 13 beansprucht, dadurch gekennzeichnet, dass seitliche Rahmenelemente (130, 200) und Verlängerungsstücke (162, 214) Strangpresserzeugnisse sind und mit ineinander greifenden Ausgestaltungen an ihren Kanten versehen sind. 55
15. Sicherheitsabdeckung wie in Anspruch 14 beansprucht, dadurch gekennzeichnet, dass Verlängerungsstücke entlang einer Anordnung eines seitlichen Rahmenelementes oder eines anderen Verlängerungsstückes gleitbar angeordnet sind.

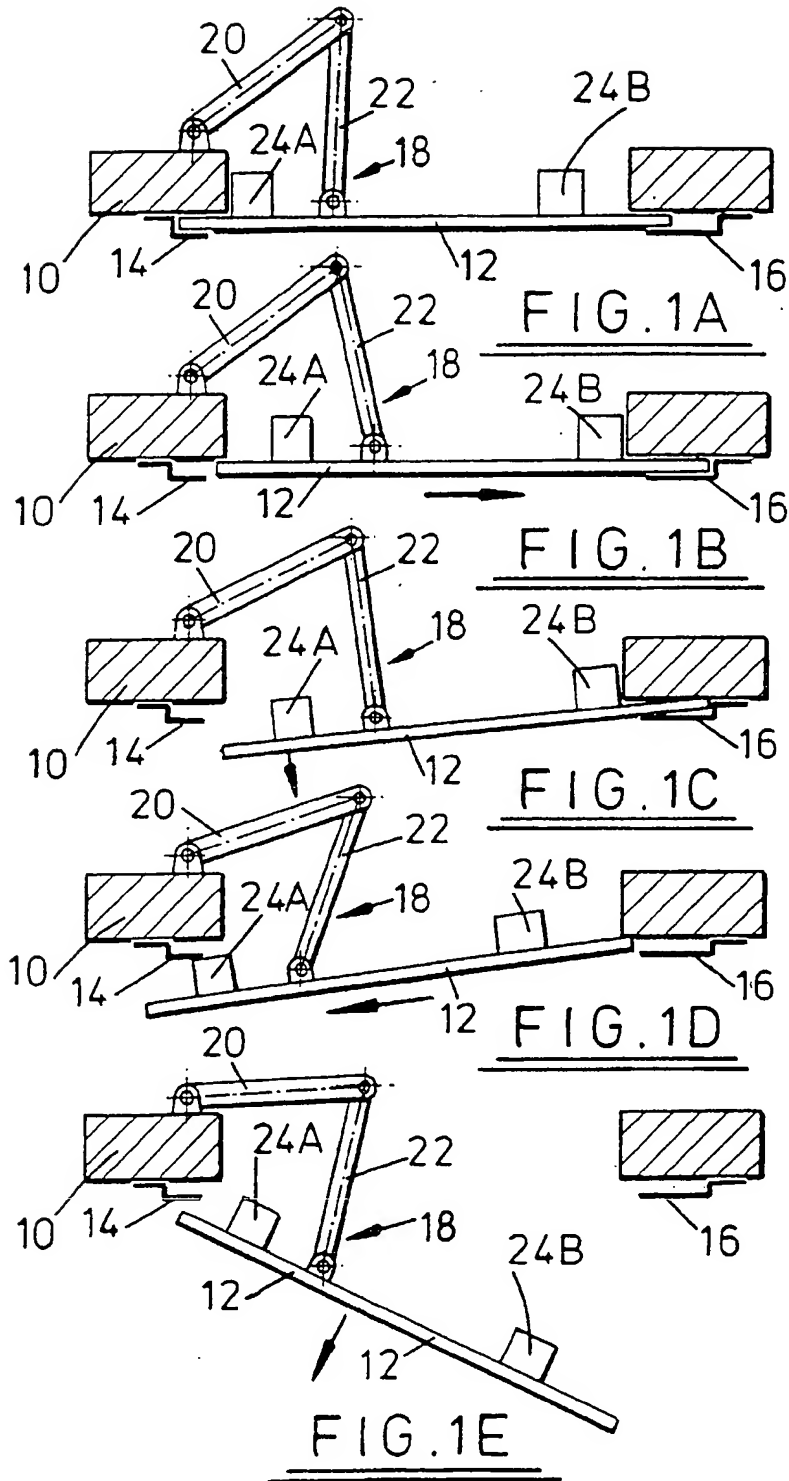
Revendications

1. Fermeture de sécurité pour une ouverture dans un bâtiment telle qu'une porte ou une fenêtre, la fermeture comprenant un cadre (10) définissant une ouverture et un panneau (12) verrouillable dans le cadre, pour fermer ladite ouverture, le panneau étant relié en pivotement au cadre et amovible par rapport à lui, caractérisée en ce que le panneau est relié au cadre par un dispositif pivotant à double biellettes (18), et en ce que le cadre comprend un premier et un second profilés à section en U opposés (16, 14) ouverts l'un vers l'autre, des bords opposés du panneau se logeant dans les profilés respectifs pour le verrouillage, le premier profilé (16) étant suffisamment large et profond pour permettre un mouvement latéral du panneau lorsque ce dernier est déverrouillé, ainsi qu'un mouvement de pivotement du panneau en dehors du plan du cadre pour dégager le panneau du second profilé (14), et ensuite du premier profilé (16). 10 15 20 25
2. Fermeture de sécurité selon la revendication 1, caractérisée en ce que ledit mouvement latéral est limité par les profilés eux-mêmes (16, 14) ou par des butées (24A, 24B) fixées au panneau (12), lesquelles peuvent buter contre le cadre. 30
3. Fermeture de sécurité selon l'une des revendications 1 ou 2, caractérisée par des moyens (30, 32, 34) pour fixer le cadre de la fermeture de sécurité à une ouverture d'un bâtiment. 35
4. Fermeture de sécurité selon la revendication 3, caractérisée par une ou plusieurs barres transversales (32) aptes à être fixées au cadre (10) pour coincer le cadre de porte ou le mur environnant entre le cadre de la fermeture de sécurité et la ou les barres transversales. 40
5. Fermeture de sécurité selon la revendication 4, caractérisée en ce que les barres transversales sont télescopiques. 45
6. Fermeture de sécurité selon l'une quelconque des revendications 1 à 5, caractérisée en ce que le cadre comprend des portions de profilé ayant des ouvertures longitudinales de largeur inférieure à celles du profilé lui-même, et en ce que des moyens (174, 176) pour fixer une barre transversale (182) sont placés dans ladite portion de profilé de manière 50 55

re qu'un cadre de porte ou un mur environnant puisse être coincé entre le cadre de sécurité de la porte et les extrémités de la barre transversale.

élément latéral du cadre ou d'un autre élément d'extension.

7. Fermeture de sécurité selon la revendication 6, caractérisée en ce que les moyens de fixation comprennent une plaque support (174) qui peut être introduite dans un élément de profilé (130, 170) selon une certaine orientation, et qui est positionnée à l'intérieur de cet élément lorsqu'elle est tournée vers une autre orientation, de préférence à 90°. 5
8. Fermeture de sécurité selon la revendication 7, caractérisée en ce que les moyens de fixation comprennent une plaque à section en L (174) et une tige fileté (176) partant d'un côté (178) de cette plaque. 10
9. Fermeture de sécurité selon l'une quelconque des revendications 1 à 8, caractérisée en ce que la liaison pivotante entre le cadre (10) et le panneau (12) comprend une première biellette (20) reliée pivotante au cadre à une extrémité, et une seconde biellette (22) à son autre extrémité, la seconde biellette étant reliée en pivotement au panneau également. 15
10. Fermeture de sécurité selon la revendication 9, caractérisée en ce que les biellettes sont entretoisées (44, 46, 53, 60). 20
11. Fermeture de sécurité selon la revendication 10, caractérisée en ce que les biellettes forment une ossature ayant des points de pivotement supérieur et inférieur espacés (50, 52, 64, 66). 25
12. Fermeture de sécurité selon l'une quelconque des revendications 1 à 11, caractérisée en ce que le cadre est équipé de moyens (162) pour augmenter sa largeur. 30
13. Fermeture de sécurité selon la revendication 12, caractérisée en ce que des éléments de prolongement (162) peuvent être fixés à un montant latéral du cadre (130) et à d'autres éléments de prolongement pour augmenter la largeur hors tout du cadre et l'adapter à l'ouverture dans laquelle il est installé. 35
14. Fermeture de sécurité selon la revendication 13, caractérisée en ce que des éléments latéraux du cadre (130, 200) et des éléments d'extension (162, 214) sont formés comme des extrusions et dotés sur leurs bords de formations venant en prise mutuelle. 40
15. Fermeture de sécurité selon la revendication 14, caractérisée en ce que les éléments d'extension sont coulissants à l'intérieur d'une formation d'un 45



NOTE - has landing surface
 - slide before it swings.

in our assembly door hinge is connected to frame hinge DIRECTLY
 without intervening articulating links.

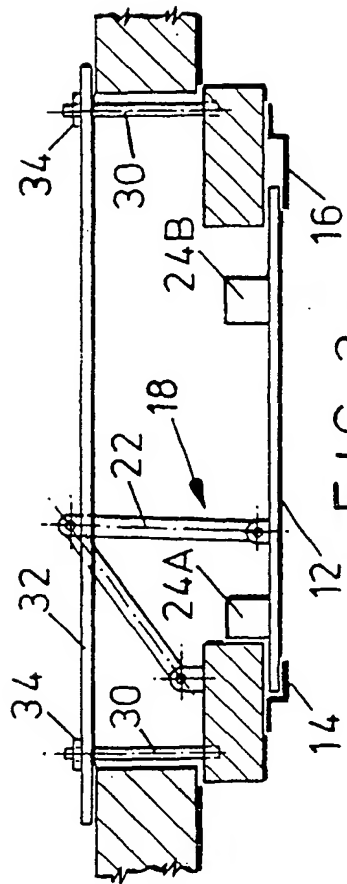


FIG. 2

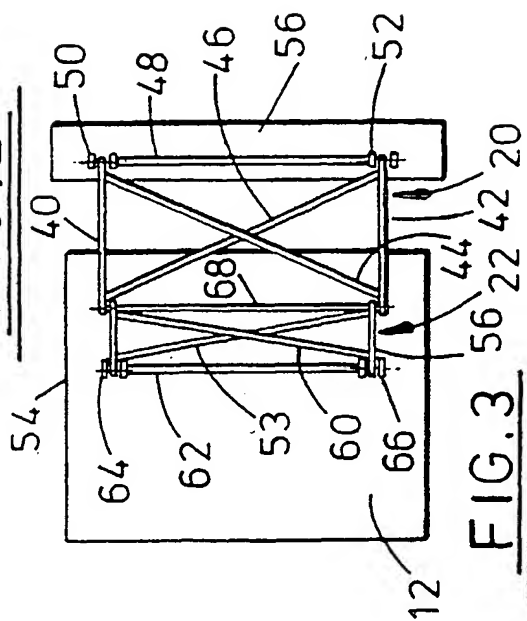
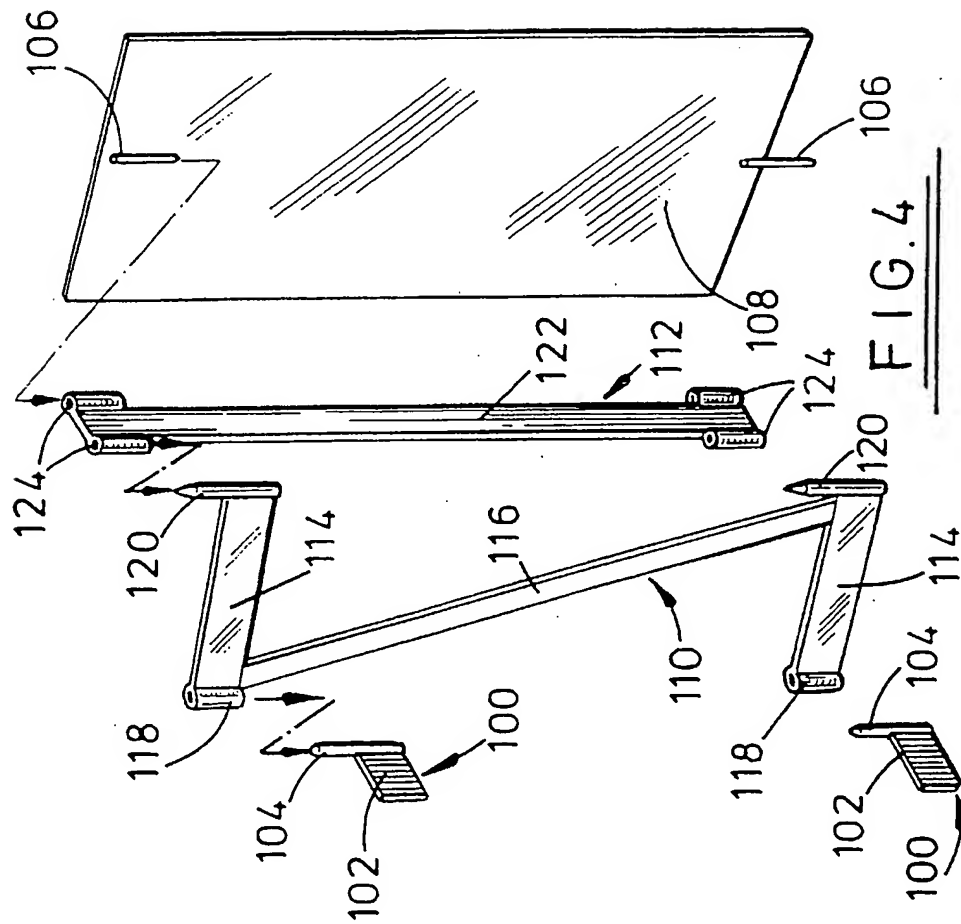


FIG. 3



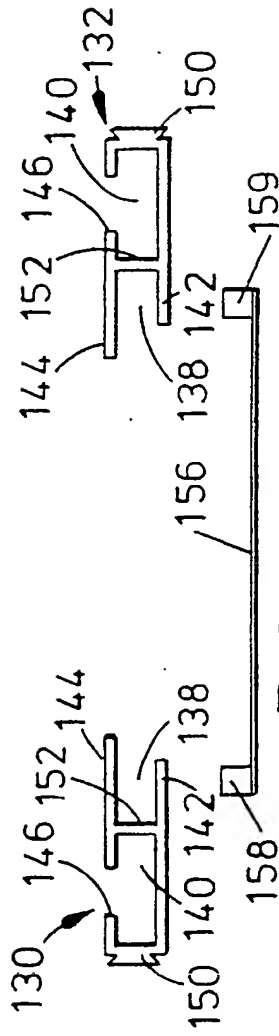


FIG. 5

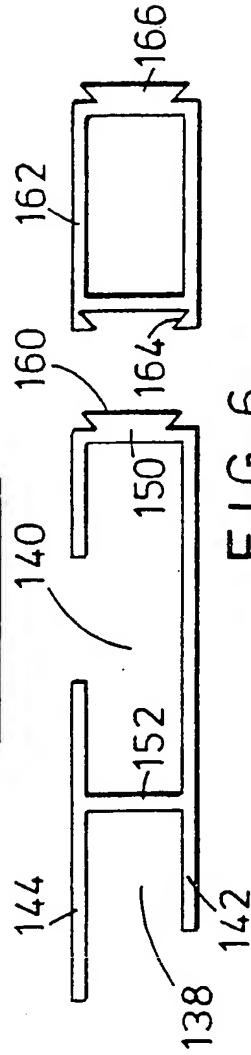


FIG. 6

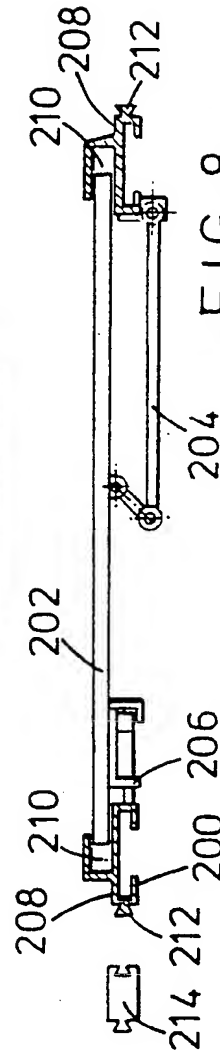


FIG. 8

